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SHORT NOTES

First discosorid cephalopod from Japan

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Abstract. Ukhtoceras hidense sp. nov. is described from the Lochkovian (Early Devonian) shale of the Fukuji Formation, Gifu Prefecture as the first find of a discosorid cephalopod in Japan. This species also extends the geographic range of the ukhtoceratids into East Asia.

Key words : Discosorid cephalopod, Fukuji Formation, Gifu, Lochkovian, Ukhtoceras hidense

A new species of ukhtoceratid discosorid cephalopod, *Ukhtoceras hidense*, is described from the Early Devonian (Lochkovian) calcareous shale of the Fukuji Formation. This species occurs at locality FH-1 of Niko (1996) in the Fukuji area of Kamitakara Village, Yoshiki-gun, Gifu Prefecture, Central Japan. Although locality FH-1 is exceptionally prolific for cephalopods among Paleozoic strata in Japan, only a single and somewhat deformed specimen of this species is usable for study, despite intensive collecting efforts during 1985–1991. This discovery provides new information on the distribution of ukhtoceratid cephalopods. UMUT stands for the University Museum of the University of Tokyo.

Systematic paleontology

Order Discosorida Flower in Flower and Kummel, 1950 Family Ukhtoceratidae Zhuravleva, 1972 Genus **Ukhtoceras** Zhuravleva, 1972

Type species.-Gomphoceras uchtense Holzapfel, 1899.

Ukhtoceras hidense sp. nov.

Diagnosis.—Relatively small, dorsoventrally depressed shell with aperture weakly constricted by shell thickening; sutures form shallow lateral lobes; siphuncle close to ventral margin, adoral siphuncle in contact with ventral shell wall; septal necks loxochoanitic ventrally, cyrtochoanitic to suborthochoanitic dorsally; connecting rings corpulent, differentiated, subtrapezoidal profile.

Description.—Shell relatively small for ukhtoceratid, nearly orthoconic longicone with slightly curved exogastric juvenile portion, apical angle approximately 8°; shell cross section dorsoventrally depressed; holotype (only known specimen) 70 mm in length, of which adoral 28 mm represents body chamber; apertural modification not observed in external shell, but shell thickening forms a weak constriction at aperture; approximately 18 mm in lateral diameter and 14 mm (slightly deformed) in dorsoventral diameter at adoral end; sutures transverse with shallow but broad lateral lobes; camerae short, its reconstructed ratio (diameter/ length) in dorsoventral plane approximately 5-7; siphuncular position close to ventral margin, but apical siphuncle only short distance from ventral shell wall, adoral siphuncle in contact with ventral shell wall; septal neck attains 0.25 mm in length at lateral shell diameter of approximately 14 mm, loxochoanitic ventral septal necks and cyrtochoanitic dorsal septal necks in apical shell shifting into loxochoanitic ventral septal necks and suborthochoanitic dorsal septal necks, respectively, with shell growth; connecting rings corpulent, with subtrapezoidal profile in dorsoventral section; structural differentiation of ventral wall of connecting rings obscure, but weak banded condition partly present; dorsal wall of connecting rings composed of inner thin, dense layer and outer thick, more transparent layer, in addition to partly preserved vinculum-like structure.

Discussion.—The shell shape of the nearly orthoconic longicone and the differentiated connecting rings of this material are undoubtedly those of an ukhtoceratid discosorid, and this species may belong to the genus *Ukhtoceras*. However, the aperture is not well preserved, and it cannot be determined whether this species has the trilobate peristome that is a diagnostic feature of *Ukhtoceras*. Therefore generic assignment of the species is tentative at present. Among the known species of *Ukhtoceras*, this species is most similar in outer shell morphology to *U. angustiangulare* Zhuravleva (1972, pl. 10, figs. 4, 5) and *U. quietum* Zhuravleva (1972, pl. 10, figs. 6, 7) from the Upper Devonian of southern Timan, but is easily distinguished from both Upper Devonian species by its smaller shell and the siphuncular shifting to contact with the ventral margin in the adoral shell.

The oncocerid? cephalopod *Shuranoceras dolmatovi* Barskov (1959, pl. 5, figs. 4a, b; monotype of the genus) from the Middle Silurian of southern Ferghana, Kazakhstan, at first glance looks similar to *Ukhtoceras hidense*. It differs from



Figure 1. Ukhtoceras hidense sp. nov., holotype, UMUT PM 27325 from the Fukuji Formation. 1. ventral view, arrow indicates position of cross section given in 7, $\times 1$. 2. lateral view of internal mold of body chamber and last two camerae, venter on right, shell dissolved with hydrochloric acid, showing sutures, $\times 2$. 3. dorsoventral polished section, slightly apart from siphuncle, venter on right, note exogastric curvature of juvenile shell, $\times 2$. 4. dorsoventral thin section, venter on left, $\times 4$. 5. dorsoventral thin section, showing details of adoral siphuncular structure, $\times 15$. 6. dorsoventral thin section, showing shell thickening at aperture, $\times 5$. 7. cross polished section, venter down, dorsal shell slightly deformed, $\times 2$. 8. dorsoventral thin section, details of siphuncular structure of apical shell, $\times 15$. 9. dorsoventral thin section, showing differentiated nature of dorsal wall of connecting rings, $\times 30$. 1, 2, coated with ammonium chloride.

U. hidense in having a laterally compressed shell and a ventral lobe in the suture line. There is a possibility that *Shuranoceras* is referable to the Discosorida rather than to the Oncocerida, based on its siphuncular structure.

This species extends the geographic distribution of the

ukhtoceratids into East Asia, and represents the first discosorid cephalopod from Japan.

Etymology.—The specific name is derived from Hida, which is the medieval provincial name of the type locality. *Material.*—UMUT PM 27325.

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Fukuji 福地, Kamitakara 上宝, Yoshiki-gun 吉城郡